

REMARKS

Claims 1-24 are pending in the present application.

The Examiner has rejected claims 1-23 under 35 U.S.C. § 103(a) as being unpatentable over Ould-Brahim et al., "BGP/GMPLS Optical VPNs" (hereinafter "Ould-Brahim") in view of Rosen et al., "BGP/MPLS VPNs" (hereinafter "Rosen").

To establish that any claim is obvious, the Examiner must identify: 1) all of the claimed elements in the prior art; 2) a reason or motivation to combine these elements to arrive at the claimed invention; and 3) a reasonable likelihood of success. (see M.P.E.P. 2141)

Claim 1 requires that the services connecting customer ports to provider ports "allow said elements of said first subset of elements to establish Layer-3 peering with said second set of elements to exchange routing information". Such Layer-3 peering between customer elements and provider elements and Layer-2 connectivity creation beneficially facilitates the provision of a Layer-2 VPN across a Layer-3 service.

The Examiner has indicated considering that a passage that starts at page 6 last paragraph and extends to page 7 paragraph 5 of Ould-Brahim discloses that a CE may pass, by using BGP, customer port information to the PE. Furthermore, the Examiner indicates that the passage also discloses that the PE passes the information stored in the PE port information tables to the attached CEs using BGP.

It is submitted that the Examiner has mischaracterized the exchange of port information as the establishment of Layer-3 peering as required by claim 1.

It is submitted that a person of ordinary skill in the art would understand that Layer-3 peering refers, for example, to interconnection of two edge devices for the purposes of exchanging packets which are destined for one (or both) of the networks to which the edge devices belong. Layer 3 peering is generally agnostic to the packet payload, and is frequently achieved using a routing protocol such as BGP to exchange the required routing information (see D. Meyer, "SPEERMINT Terminology", draft-ietf-speermint-terminology-06.txt, available at <http://tools.ietf.org/>).

The Examiner indicates, in paragraph 7, that Ould-Brahim alone discloses "Layer-2 connectivity between elements within said first subset of elements at the Layer-2 level across said Layer-3 VPN service".

In response, the Applicant reminds the Examiner that Ould-Brahim relates to the establishment of Optical VPNs. Optical VPNs are inherently Layer-1 VPNs. Recall that the network layer (Layer-3) is responsible for end to end (source to destination) packet delivery, whereas the data link layer (Layer-2) is responsible for node to node (hop to hop) packet delivery.

Despite the assumption, in Ould-Brahim, that CE-to-CE optical connectivity is based on Generalized Multiprotocol Label Switching (GMPLS), it is submitted that the CEs are not members of a Layer-2 VPN but, instead, are members of a Layer-1 VPN.

In Ould-Brahim, the CE are using GMPLS to create only layer-1/optical connections. Accordingly, there is an indication that there is a need for control channel because layer-2 signaling packets cannot be sent across a layer-1-based ports (CE and PE ports).

The last paragraph of page 3 of Ould-Brahim indicates that:

"A CE is connected to a PE ONE via one or more links, where each link may consists of one or more channels or sub-channels (e.g., wavelength or wavelength and timeslot respectively)."

Furthermore, page 4, paragraph 5 of Ould-Brahim indicates that:

"A link has two end-points - one on CE and one on PE ONE. In the context of this document we'll refer to the former as "CE port", and to the latter as "PE ONE port". From the above it follows that a CE is connected to a PE ONE via one or more ports, where each port may consists of one or more channels or sub-channels (e.g., wavelength or wavelength and timeslot respectively), and all the channels within a given port have shared similar characteristics (e.g., bandwidth, encoding, etc.), and can be interchanged from the CEs point of view. Channels on different ports of a CE need not have the same characteristics."

It is noteworthy that the types of ports mentioned in Ould-Brahim are all Layer-1/Optical based ports.

Despite the propagation, in Ould-Brahim, of local information from one PE

ONE to another PE ONE by using BGP with multi-protocol extensions, it is submitted that the PEs do not implement a Layer-3 VPN service, as required by claim 1.

It is submitted that the Optical VPN disclosed in Ould-Brahim may be distinguished from the Layer-3 VPN service, as claimed, in that a layer-3 VPN service requires IP traffic between the CE and PE, while the disclosed Optical VPN has only optical interfaces between the CE and the PE ONE.

It is submitted that neither Ould-Brahim nor Rosen disclose Layer-3 peering between customer elements and provider elements. Since neither Ould-Brahim, nor Rosen, nor a combination of Ould-Brahim and Rosen disclose the Layer-3 peering between customer elements and provider elements, the combination of Ould-Brahim and Rosen may not be used to reject claim 1 as obvious. It is respectfully requested that the Examiner withdraw the rejection of claim 1, and the rejection of claims 2-11 dependent thereon, on that basis.

Claim 12, requires that the services connecting customer ports to provider ports "allow said elements of said first subset of elements to establish Layer-3 peering with said second set of elements to exchange routing information". Since, as discussed above, neither Ould-Brahim, nor Rosen, nor a combination of Ould-Brahim and Rosen disclose the Layer-3 peering between customer elements and provider elements, the combination of Ould-Brahim and Rosen may not be used to reject claim 12 as obvious. It is respectfully requested that the Examiner withdraw the rejection of claim 12, and the rejection of claims 13-22 dependent thereon, on that

basis.

Claim 23 requires that the services connecting customer ports to provider ports “allow said elements of said first subset of elements to establish Layer-3 peering with said second set of elements to exchange routing information” (see paragraph [0151] of the application as published, among other paragraphs).

Since, as discussed above, neither Ould-Brahim, nor Rosen, nor a combination of Ould-Brahim and Rosen disclose the Layer-3 peering between customer elements and provider elements, the combination of Ould-Brahim and Rosen may not be used to reject claim 23 as obvious. It is respectfully requested that the Examiner withdraw the rejection of claim 23 on that basis.

The Examiner has rejected claim 24 under 35 U.S.C. § 102(b) as being anticipated by Ould-Brahim.

The Examiner indicates that the PEs in Ould-Brahim are “associated in a Layer-3 Virtual Private Network” as required by claim 24. The Application respectfully disagrees. As discussed hereinbefore, the mere use of BGP does not establish a Layer-3 VPN.

It is submitted that, since Ould-Brahim does not discloses PEs “associated in a Layer-3 Virtual Private Network”, Ould-Brahim does not anticipate claim 24. It is respectfully requested that the Examiner withdraw the rejection of claim 24 on that basis.

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In view of the foregoing, the applicant respectfully submits that claims 1-24 are in condition for allowance. Favorable reconsideration and allowance of claims 1-24 are respectfully requested.

Respectfully Submitted,
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